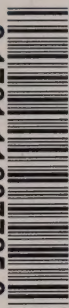


CA1
MT 76
- A66



3 1761 11637725 0



NATIONAL ENERGY BOARD REASONS FOR DECISION

In the Matter of an Application under
Part III of the National Energy Board Act

of

TRANSCANADA PIPELINES LIMITED

February 1980

1
Canada

2
1
NATIONAL ENERGY BOARD

3
1
REASONS FOR DECISION

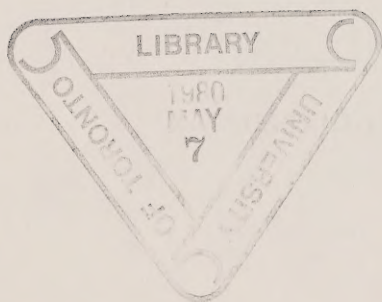
In the Matter of an Application under
Part III of the National Energy Board Act

of

TRANSCANADA PIPELINES LIMITED

February 1980

Ce rapport est publié
séparément dans les
deux langues officielles



NATIONAL ENERGY BOARD

IN THE MATTER OF the National Energy Board Act and the Regulations made thereunder, and

IN THE MATTER OF an application by TransCanada PipeLines Limited (hereinafter called "the Applicant") for a Certificate of Public Convenience and Necessity under Part III of the said Act, filed with the Board under File Number: 1555-T1-90.

HEARD AT Ottawa, Ontario on:

27 and 28 November 1979 and 8 January 1980.

BEFORE:

R.F. Brooks)	Presiding Member
J.R. Hardie)	Member
R.B. Horner)	Member

APPEARANCES:

J.H. Francis, Q.C.)	TransCanada PipeLines Limited
G.M. McQuire)	
M. Peterson)	Gaz Métropolitain, inc.
J. Bulger)	
S. Carscallen)	Sulpetro Limited
J.H. Farrell)	The Consumers' Gas Company
D.H. Rogers)	Ontario Ministry of Energy
K.J. MacDonald)	National Energy Board
A.R. Macdonald)	

Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

<https://archive.org/details/31761116377250>

TABLE OF CONTENTS

	<u>Page</u>
RECITAL AND APPEARANCES	(i)
TABLE OF CONTENTS	(ii)
ABBREVIATIONS	(iii)
<u>CHAPTER 1</u>	
THE APPLICATION	1 - 1
<u>CHAPTER 2</u>	
INTERVENTIONS	2 - 1
<u>CHAPTER 3</u>	
FACILITIES	3 - 1
- Evidence and Argument	3 - 1
Views of the Board	3 - 8
<u>CHAPTER 4</u>	
ALTERNATIVE ROUTES AND RIGHT-OF-WAY	4 - 1
- Evidence and Argument	4 - 1
Views of the Board	4 - 3
<u>CHAPTER 5</u>	
ENVIRONMENTAL ASPECTS	5 - 1
- Evidence and Argument	5 - 1
Views of the Board	5 - 2
<u>CHAPTER 6</u>	
CAPITAL COST AND CANADIAN CONTENT	6 - 1
<u>CHAPTER 7</u>	
DISPOSITION	7 - 1
<u>APPENDICES</u>	
I - Appendix to Board Order PO-1-GH-6-79	
II - Map Showing Location of Proposed Facilities	
III - Drawing Showing Extent of Loop and Proposed Population Replacements	
IV - Terms and Conditions for Certificate	

ABBREVIATIONS

CANADIAN PETROLEUM ASSOCIATION	"CPA"
CONSOLIDATED NATURAL GAS LIMITED	"CNG"
CONSUMERS' GAS COMPANY (THE)	"Consumers'"
GAZ METROPOLITAIN, INC.	"Gaz Metro"
NATIONAL ENERGY BOARD	"the Board"
PARKWAY BELT UTILITY CORRIDOR	"Parkway Belt"
PROGAS LIMITED	"ProGas"
SULPETRO LIMITED	"Sulpetro"
TRANSCANADA PIPELINES LIMITED	"TransCanada" or "the Applicant"

CHAPTER 1

THE APPLICATION

TransCanada PipeLines Limited was incorporated in 1951 by a Special Act of the Parliament of Canada. On 19 April 1972, the Company was granted letters patent continuing it as a company under the provisions of Part I of the Canada Corporations Act, and on 1 June 1979, TransCanada was continued under the provisions of the Canada Business Corporations Act. As such, TransCanada is a "company" within the meaning of the National Energy Board Act, R.S.C. 1970, c.N-6, as amended.

TransCanada operates a large diameter pipeline system extending from the Province of Alberta through the Provinces of Saskatchewan, Manitoba and Ontario.

By an application dated 27 July 1979, TransCanada applied to the Board, under Part III of the Act, for a certificate of public convenience and necessity to construct and to operate additional pipeline facilities, namely to loop an existing section of its pipeline system between Maple and Lisgar, in the Province of Ontario, with approximately 49.1 kilometres of 914 mm O.D. pipeline, together with all works connected therewith.

By Order No. GH-6-79, the National Energy Board set down the application for hearing commencing on 27 November 1979 at Ottawa, Ontario. The hearing concluded the following day.

The Board, by Order No. PO-1-GH-6-79 (Appendix I), ordered that the hearing be reopened, commencing in Ottawa on 8 January 1980, to acquire additional information in order to reach a decision on the application. This requirement for additional information arose, in part, from circumstances which were not present at the time of the original hearing on 27 and 28 November, including the possible effect on the need for the facilities of the Board's decision of November 1979 authorizing exports of natural gas from Canada.⁽¹⁾

(1) Reasons for Decision in the Matter of Applications under Part VI of the National Energy Board Act of Alberta & Southern Gas Co. Ltd., et al, November 1979.

CHAPTER 2

INTERVENTIONS

The following parties filed interventions and were represented at the hearing: Gaz Métropolitain, inc., Sulpetro Limited and The Consumers' Gas Company all supported the application. The Ontario Ministry of Energy did not oppose the application but had concerns about environmental matters.

The Canadian Petroleum Association filed an intervention but did not appear at the hearing. The CPA did not support or oppose the application.

The Corporation of the City of Brampton filed with the Board submissions which supported the application under certain conditions.

The representations made by intervenors have all been carefully considered and are referred to in more detail in later sections of this report.

CHAPTER 3

FACILITIES

Evidence and Argument

TransCanada applied for authority to construct approximately 49.1 kilometres of 914 mm outside diameter loop extending from a point identified as 'MLV No. 201-2', within the Applicant's existing 'Compressor Station No. 130' site, situated in part of Lot 29, Concession 6, formerly in the Township of Vaughan, County of York, now in the Town of Vaughan in the Regional Municipality of York, to a point identified as 'MLV 204A-2', within the Applicant's existing 'Lisgar Sales Meter Station' site, situated in part of Lot 9, Concession 11, West of Hurontario Street, formerly in the Township of Trafalgar, County of Halton, now in the City of Mississauga in the Regional Municipality of Peel, all in the Province of Ontario.

TransCanada indicated that most of the proposed pipeline loop would use existing right-of-way but there would be two additional portions required, totalling some 0.37 kilometres in length, adjacent to the existing right-of-way. The final 8.2 kilometres of the loop would be constructed on a new right-of-way which would follow the Parkway Belt Utility Corridor and then would parallel the Union Gas Limited right-of-way to Lisgar. The proposed route is shown in Appendix II.

The Applicant stated its intention to derate (reduce the operating pressure of) the existing section of pipeline from Maple to Lisgar to the level permitted for Class 3 locations in accordance with CSA Standard Z184-M1979. This would remove the requirement to perform any replacements due to Class 3 population densities in the existing line from Maple to Lisgar. TransCanada indicated that the derating would also materially enhance the safety of operation of the existing line by lowering the stress levels in the pipe. (The derating would presumably be the subject of a future application).

During the hearing, the Applicant gave seven reasons to justify the need for the new facilities:

- 1) Increased security of supply.
- 2) Increased safety permitted by the derating of the existing pipeline to a Class 3 stress level of 50 percent of the specified minimum yield strength.
- 3) The alleviation of an operating bottleneck between Maple and Lisgar, especially on summer weekends and holidays.
- 4) The improvement of the overall operating efficiency of the Applicant's system throughout the year, and especially that portion of the system in Northern Ontario.
- 5) The accommodation of additional exports.

- 6) The accommodation of growth in Canadian markets.
- 7) The elimination of the need to perform replacements required by the escalation of the population to Class 3 density along certain portions of the existing pipeline. These population escalations would be accommodated by derating the existing line once the looping had been completed.

During the hearing, the Applicant stated that the primary reasons for the application were the first two listed.

Upon examining the record of the first two days of the hearing in the light of the Board's report on the export of natural gas dated November 1979, the Board found that it had insufficient evidence to reach a disposition of the application. It was not clear on the record how the authorization of exports for Consolidated Natural Gas and ProGas would affect TransCanada's application for additional facilities between Maple and Lisgar.

Accordingly, the hearing was reopened by procedural order PO-1-GH-6-79 which included a request for additional information (Appendix I). TransCanada was requested to

explore the engineering and economic aspects of alternatives to the "loop only" case proposed in its application.

The Applicant stated at the reopening of the hearing that the seven reasons for its looping application had not changed as a result of the exports authorized for CNG, ProGas, and Sulpetro. TransCanada's additional evidence evaluated and compared alternatives with the proposal applied for, in the context of the criteria embodied in these seven reasons.

The alternatives considered consisted of a combination of loop and additional compression on the Niagara line, or the installation of additional compression on the Niagara line without any loop. In order to compare the economics of the alternatives with the facilities proposed in the application, the Applicant filed a present worth analysis for each case.

All but one of the alternative cases TransCanada considered required the construction of one or more new compressor stations on the Niagara Extension. The Applicant provided evidence that it was not possible to construct a new compressor station by 1 November 1980. This was judged by the Applicant to be the critical date for completion because the exports of gas authorized for CNG and ProGas could begin moving out of Canada at Emerson at that time. Consequently, those alternatives which would require the construction of a

new compressor station were eliminated by the Applicant, leaving only one alternative to the proposal in the application as filed.

A present worth comparison using a discount rate of 10.9 percent indicated that the discounted value of the annual owning and operating costs was approximately ten million dollars higher for the facilities proposed in the application than for the remaining alternative consisting of loop plus additional compression at Station 209.

The following further compares the remaining alternative with the "loop only" case applied for in the context of the seven reasons given by TransCanada for its application.

1) Increased security of supply.

The facilities as applied for (49.1 kilometers of loop) had an advantage in this regard. TransCanada calculated that with the most critical section of the loop out of service (MLV 201-2 to MLV 202-2), approximately 8.7 million cubic metres per day could still be delivered from Maple to Lisgar under "Winter Peak Day" conditions during the most critical operating period, namely 1980-81. TransCanada stated that for the alternative case of loop plus compression at Station 209, the amount of gas that could be moved to Lisgar with the

same valve section of the loop out of service would be substantially less.

- 2) Increased safety permitted by the derating of the existing pipeline to a Class 3 stress level of 50 percent of the specified minimum yield strength.

During the hearing, the evidence indicated that the facilities as proposed in the application as well as those described in the "loop plus compression" alternative would result in all Class 1 pipe between Maple and Lisgar being looped. For the alternative case which would require 33.6 kilometres of loop, only Class 3 pipe would be left unlooped from the termination of the loop to Lisgar. The Applicant further stated that all existing line which would be looped could be derated. Consequently, upon completion of the facilities outlined in either the application or the alternative, followed by the derating of the corresponding looped portion of the existing line, the permissible stress level for all the existing line between Maple and Lisgar would not be higher than that allowed for Class 3 locations as outlined in the CSA Standard Z184- M1979.

Turning to the five secondary reasons listed on pages 3-2 and 3-3 of these Reasons for Decision, the first four of these would be accommodated equally by the facilities proposed in the application or by the "loop plus compression"

alternative because both would satisfy TransCanada's capacity requirements. Regarding the last reason, it was stated during the hearing that all the projected pipe replacements likely to be necessitated by population density increases between Maple and Lisgar during the next ten years would be within the first 23.7 kilometres downstream of Maple (Appendix III). Since adoption of the alternative case would result in the addition of 33.6 kilometres of loop in 1980-81, the projected pipe replacements which would otherwise have been required during the next ten years would be unnecessary.

Views of the Board

The Board agrees that it is unlikely that a new compressor station could be constructed by 1 November 1980 when the need for additional facilities becomes critical and therefore the alternatives that require a new compressor station are not practical.

The Board considers that the seven reasons advanced by TransCanada demonstrate a need for some additional facilities. The Board recognizes that the facilities proposed in the application would satisfy all of the seven reasons. The alternative of a combination of some loop and additional compression at Station 209 would satisfy all but one of these reasons; the exception is the security of supply. In this connection the Board notes that the area served by this Maple-Lisgar line can also be served from the pipeline between Dawn and Lisgar.

The issue before the Board is therefore whether the full 49.1 kilometres of loop requested by the Applicant is required by the present and future public convenience and necessity.

The evidence adduced at the hearing indicates that the 49.1 kilometres of loop proposed by TransCanada in its application is economically less attractive than the alternative of loop plus additional compression. On a present worth basis using a 10.9 percent discount rate, the penalty is approximately ten million dollars.

The Applicant's justification for the additional cost was based principally on the increased security of supply which would result from the "loop only" proposal. In the Board's view a case was not made that the increased security of supply, which had not been quantified, justified the additional expenditure.

The Board is satisfied, however, that the construction of 33.6 kilometres of loop in 1980-81 is justified. If TransCanada considers that additional facilities are needed, such as additional compression at Station 209, it may make the necessary application.

CHAPTER 4ALTERNATIVE ROUTES AND RIGHT-OF-WAYEvidence and Argument

The Ontario Ministry of Energy pointed out that Part VI of the Schedule to the Board's Rules of Practice and Procedure required that alternative routes be considered, and asked why these considerations had not been presented as part of the application.

The Applicant testified that two alternative routes had been considered, but were rejected by TransCanada as infeasible. One corridor was examined north of the selected route and one was considered south of it.

The corridor to the north had been examined by Ontario Hydro for a high voltage transmission line several years earlier and had been rejected because of a number of complicating factors. TransCanada gave evidence that the northern alternative had been subjected to intensive urban planning and development and that the potential conflicts with the proposed pipeline would be prohibitive.

The corridor to the south would utilize the Parkway Belt Utility Corridor located approximately ten kilometres south of, and parallel to, the existing right-of-way. TransCanada rejected this alternative for various reasons. The primary factor in eliminating the Parkway Belt was that the

Province of Ontario had not acquired all lands required to establish its proposed corridor. The Government of Ontario would not be in a position to entertain a proposal to locate the TransCanada pipeline loop in the Parkway Belt for several years. Several secondary reasons for rejection were also given. Firstly, TransCanada would be required to obtain approximately ten kilometers of new easements and in some cases would be required to obtain land in fee simple where the pipeline would be located in areas of future urban development. Secondly, the effect of constructing the pipeline on new right-of-way would be more damaging environmentally. Thirdly, the southern alternative would necessitate lengthy tie-overs to the existing line, thus increasing environmental and right-of-way problems, and decreasing the benefit of additional security of supply to the pipeline.

The Applicant stated that no in-depth environmental analysis had been undertaken for either of the alternative routes. Its environmental consultant, Ecoplans Ltd., was engaged only to provide an assessment of the proposed route.

In argument, the Ontario Ministry concluded that the environmental analysis should have satisfied Part VI of the Schedule to the Rules of Practice and Procedure. While not advocating the Parkway Belt as a better alternative, the Ministry did state that it was an available alternative

which deserved serious consideration but which had not been analyzed in the environmental assessment.

The Corporation of the City of Brampton filed with the Board and TransCanada prior to the hearing a submission outlining various concerns and recommendations. Two reports prepared by the City of Brampton were filed at the hearing by Board Counsel on behalf of The Corporation of the City of Brampton. Included were eight recommendations for the safety and security of any planned or unplanned urban developments adjacent to the proposed pipeline right-of-way. A telex was introduced at the hearing stating that City Council had adopted the eight recommendations. The Applicant stated that it had no problem with these recommendations.

TransCanada indicated that the proposed 914 mm diameter pipeline would be located within an existing right-of-way 18.29 metres in width for the majority of the route. The Applicant identified two areas where additional land would be required. At these locations, the existing right-of-way, being only 12.19 metres wide, would not accommodate the installation of a loop.

Views of the Board

The Board is satisfied with TransCanada's plan to make use of existing right-of-way, with the deviations

proposed. The Board accepts the Applicant's selected route.

The Board notes that construction of the pipeline within the Parkway Belt would place the proposed pipeline in close proximity to several high voltage transmission lines. It is apparent that location of the proposed pipeline in this region could present potential problems which, although solvable, would require co-ordination and co-operation between TransCanada and Ontario Hydro, as well as continuous monitoring. The alternative of loop plus compression would not require facilities in this corridor.

The Board recognizes the contribution of The Corporation of the City of Brampton with its recommendations regarding land use adjacent to high pressure gas pipelines. Adherence to these recommendations should enhance the safety and integrity of the pipeline as well as the safety of the public.

CHAPTER 5

ENVIRONMENTAL ASPECTS

Evidence and Argument

The Applicant submitted an environmental impact assessment for the project. The report consisted of a description of the environment along the pipeline route, and an assessment of the impact of the pipeline on the environment. TransCanada's environmental consultants' recommendations for practices and procedures to mitigate or minimize potential adverse impact on the environment were included.

TransCanada stated that it would accept the recommendations of its environmental consultant and would implement the recommendations contained in the environmental assessment and in its Environmental Protection Practices Handbook.

TransCanada, because of problems related to obtaining pipe, and because of construction and environmental difficulties associated with late winter or spring construction, filed a revised construction schedule. Under this schedule, construction would commence in mid-June 1980 and be completed by the end of August. Construction clean-up could extend to mid-September. However, the Applicant stated that it was possible that some construction could take place

in the winter of 1979-80 as proposed in the original construction schedule. A firm commitment regarding construction timing was not given.

The Ministry of Energy for Ontario reaffirmed its support for summer as opposed to winter construction for environmental reasons. A primary concern in this regard was the fish resources of the Credit River. Should construction of the crossing under this river be undertaken during spawning in September and October, or should the eggs which hatch in the spring be disturbed or destroyed by winter construction, these fish resources could suffer significantly.

Slopes in the Humber and Credit Valley were identified as areas of concern with respect to erosion, siltation and slope stability. TransCanada undertook to minimize the adverse impacts by using appropriate construction and post-construction mitigative, restorative and remedial procedures.

TransCanada stated that it would minimize the impact of construction on agricultural and forest lands, and testified that construction operations in these areas would be under the supervision of an environmental inspector.

Views of the Board

The Board has carefully considered the environmental evidence submitted by the Applicant.

The Board notes the undertakings of TransCanada to minimize the impact of its proposal on the environment and accepts the Applicant's undertaking that the construction would be monitored by a qualified environmental inspector. Unfortunately, TransCanada made no commitment as to when construction would take place, and in particular, when the major stream crossings would be constructed.

The Board has noted the concern expressed by the Ministry of Energy for Ontario regarding the adequacy of information contained in the Applicant's environmental assessment with regard to the consideration of alternative routes.

The Board is satisfied that the environmental impact of the proposed project could be held to minimal levels, given the implementation of the policies, practices and procedures included in the reports and recommendations of the environmental consultants of TransCanada or as adduced in evidence. The Applicant undertook to implement these environmental policies, practices and procedures, and the Board considers TransCanada bound by that undertaking.

CHAPTER 6

CAPITAL COST AND CANADIAN CONTENT

CAPITAL COST

The estimated capital cost (in 1979 dollars) of the proposed facilities and of the alternative are \$26,934,000 and \$21,337,000 respectively.

TransCanada stated that the capital requirements for these facilities would be financed by utilizing present lines of credit.

Views of the Board

The Board is satisfied that the cost estimates provided are reasonable and that the Applicant could finance any facilities which would be certificated.

CANADIAN CONTENT

TransCanada estimated that the proposed facilities would have 94 percent Canadian content.

Views of the Board

The Board is satisfied with the analysis of Canadian content filed by the Applicant and encourages the Applicant to ensure that the potential Canadian content for this project is achieved.

CHAPTER 7

DISPOSITION

The Board has given careful consideration to the application and the information filed in support of it, together with the evidence adduced and all representations made during the hearing. The Board has taken into account all matters which to it appear to be relevant.

The Board accepts TransCanada's selected route. The Board notes the undertakings of the Applicant and is satisfied that TransCanada can hold the environmental impact to a minimum. The Board has considered the concerns expressed by the Ministry of Energy for Ontario and has taken these concerns into account in reaching its decision.

The Board finds the cost of the facilities to be reasonable, and is satisfied with both the Canadian content and the proposed financing of the pipeline.


The Board finds that a portion of the loop for which TransCanada has applied for a certificate, specifically the portion 33.6 kilometres in length, extending from a point identified as "MLV NO. 201-2", within the Applicant's existing "Compressor Station No. 130" site, situated in part of Lot 29, Concession 6, formerly in the Township of Vaughan, County of

York, now in the Town of Vaughan in the Regional Municipality of York, to a point situated in part of Lot 10, Concession 5, West of Hurontario Street, formerly in the Township of Chinguacousy, County of Peel, now in the City of Brampton in the Regional Municipality of Peel, all in the Province of Ontario, is and will be required by the present and future public convenience and necessity.

As to the balance of the loop applied for, 15.5 kilometres extending from the hereinbefore described end point to a point identified as "MLV 204A-2"; within the Applicant's existing "Lisgar Sales Meter Station" site, situated in part of Lot 9, Concession 11, West of Hurontario Street, formerly in the Township of Trafalgar, County of Halton, now in the City of Mississauga in the Regional Municipality of Peel, in the Province of Ontario, the Board finds that such additional looping is not justified in comparison with the significantly less costly alternative of installing additional compression facilities.

Accordingly, the Board is prepared, subject to the approval of the Governor in Council, to issue a certificate for construction of 33.6 kilometres of 914 mm outside diameter pipeline commencing near Maple in the Province of Ontario, at MLV 201-2, and running along the Niagara Extension to a point situated in Lot 10, Concession 5, West of Hurontario Street,

formerly in the Township of Chinguacousy, County of Peel, now in the City of Brampton in the Regional Municipality of Peel, all in the Province of Ontario. Terms and conditions of the certificate are set out in Appendix IV hereto.


R.F. Brooks
Presiding Member


J.R. Hardie
Member


R.B. Horner
Member

Ottawa, February 1980

APPENDIX TO BOARD ORDER PO-1-GH-6-79

The Applicant shall provide engineering and economic evaluations, including alternatives such as, but not necessarily limited to, those referred to in the hearing.

Examples of such alternatives would be:

- (1) loop only,
- (2) loop plus additional compression facilities at station 209,
- (3) a new compressor station downstream of Maple,
- (4) loop plus a new compressor station downstream of Maple.

All alternatives evaluated shall be based on the capacity requirements emanating from the Board's natural gas export report of November, 1979, and the resulting decreased Canadian deliveries via the Great Lakes system.

In the development of engineering and economic evaluations of possible alternatives, including the looping from Maple to Lisgar, the Applicant should provide the following information:

- (1) A description of the alternative facilities considered.
- (2) Estimates of the St. Clair receipts for the summer and winter periods for the next ten years for the export scenario as described in the Board's natural gas export report of

November, 1979. The annual Great Lakes Canadian deliveries should also be given. An engineering flow calculation should be included for the Great Lakes system for the period which demonstrates the most severe Great Lakes back-off. If the addition of facilities on Great Lakes is anticipated, the effects of such additions should be accommodated in this submission.

- (3) An estimate of how much of the loop, as proposed in the application, would be necessary in 1990 after the exports referred to in the Board's natural gas export report of November, 1979, have terminated. If the amount of loop required for 1990 Canadian requirements is not the full amount applied for, an estimate should be given of the year in which Canadian requirements would necessitate the full amount of loop.
- (4) The efficiency of compression unit(s), and the assumptions used for determination of the consumption and cost of fuel. A sample fuel consumption calculation should be included.

- (5) The availability of a compression unit, whether by purchase, rental or movement from other TCPL locations. The delivery times required for purchase or rental units should be verified for several suppliers.
- (6) An engineering flow calculation for the proposed loop showing the throughput capacity of the loop and the derated 610 mm O.D. line with the most critical valve section of the loop out of service. This calculation should be performed for the year and season which governs the requirement for the proposed facilities. The flow splits between the loop and the existing line should be identified.
- (7) Engineering flow calculations for each alternative with the additional facilities clearly indicated and flow splits between the existing line and the proposed loop shown where applicable.
- (8) For each alternative, the capital costs in 1979 dollars, with breakdown where appropriate.
- (9) For each alternative, the annual incremental operating and maintenance costs and fuel costs in 1979 dollars.

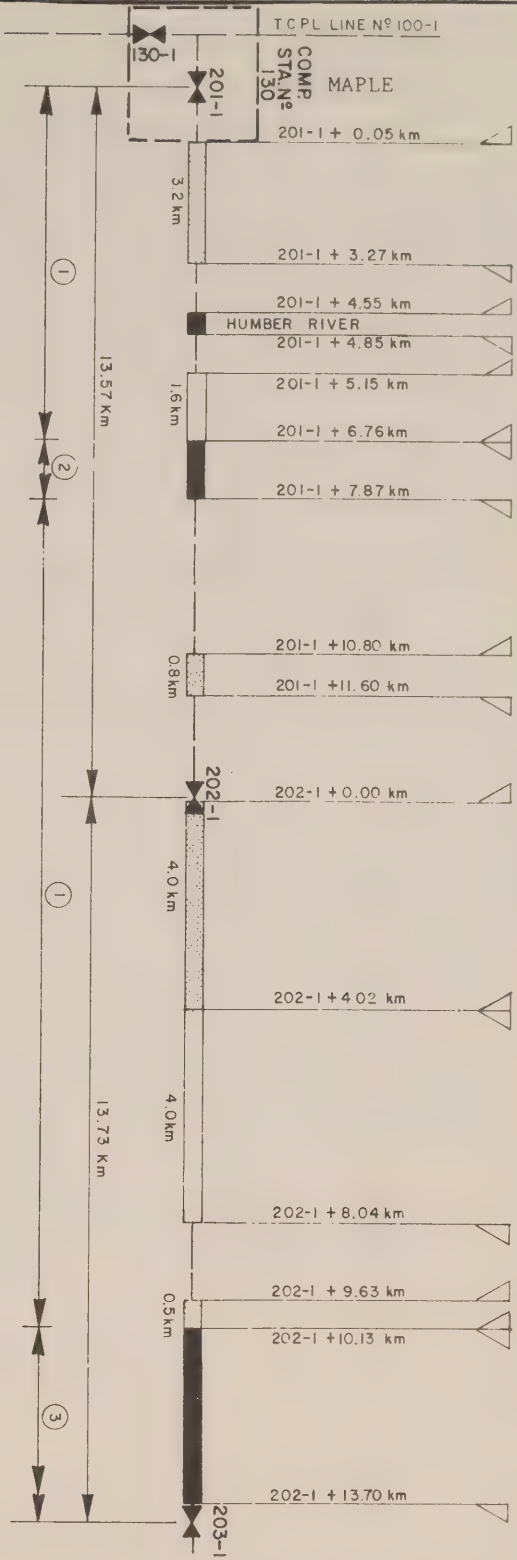
- (10) For each alternative, the assumptions regarding unit utilization, fuel consumption and cost of fuel should be clearly indicated.
- (11) An estimate of the fuel savings on TransCanada's upstream facilities effected by removing or alleviating the bottleneck condition between Maple and Lisgar. The Applicant should provide a description of the methodology and assumptions utilized in arriving at this estimate.
- (12) Based on TransCanada's forecasts, and the Board's natural gas export report of November, 1979, the estimated time when the existing bottleneck condition would first prevent TransCanada from meeting its annual delivery commitments to Consumers' and Union.
- (13) An estimate of the critical crack lengths for fracture initiation for the MAOP's before and after the proposed derating of the existing line. The minimum toughnesses required at the present and derated MAOP's to arrest fracture propagation should be provided. Typical toughness values, other than those provided by the Ontario Research Foundation in its Kleinburg break report, should be provided if available.



MAP SHOWING LOCATION OF PROPOSED FACILITIES

MAPLE TO LISGAR
CONSTRUCTION AND POPULATION CLASSES

EXTENT OF LOOPING FOR 'LOOP PLUS COMPRESSION' ALTERNATIVE



VALVE NO.	DISTANCE
MLV 201-1 (MAPLE)	0.00 km
MLV 202-1	13.57 km
MLV 203-1	27.30 km
MLV 204-1	40.06 km
MLV 204A-1 (LISGAR)	43.92 km
SHERIDAN	55.17 km

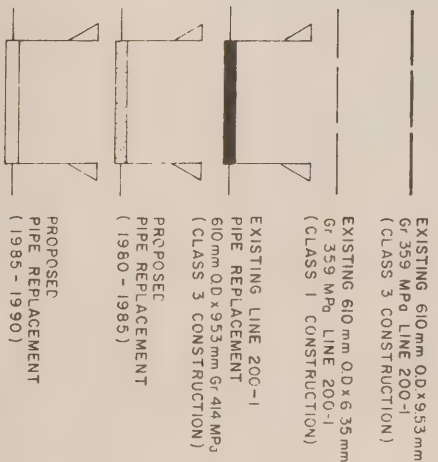
NOTES:

THE CONSTRUCTION CLASS OF THE EXISTING PIPE IS BASED ON TABLE 6.6 OF CSA Z184 M1979 FOR THE MAOP OF 5980 KPa (867 PSIG)

THE CONSTRUCTION CLASS OF NEW REPLACEMENT PIPE IS BASED ON THE DESIGN PRESSURE OF 6450 KPa (936 PSIG).

LEGEND

① EXISTING POPULATION DENSITY CLASS LOCATION



TERMS AND CONDITIONS FOR CERTIFICATE

1. The additional pipeline to be constructed shall be 914 mm O.D. pipeline commencing near Maple, in the Province of Ontario, at MLV 201 and running approximately 33.6 km along the Niagara Extension to a point situated in Lot 10, Concession 5, west of Huron Ontario Street, formerly in the Township of Chinguacousy, County of Peel, now in the City of Brampton, in the Regional Municipality of Peel, in the Province of Ontario.
2. The additional pipeline shall be the property of and shall be operated by TransCanada.
3.
 - (1) TransCanada shall cause the additional pipeline, in respect of which this Certificate is issued, to be designed, manufactured, located, constructed, and installed, in accordance with those specifications, drawings, and other design data set forth in the Application, unless varied in accordance with subcondition (2) hereof, and those that are otherwise filed with the Board.
 - (2) TransCanada shall cause no variation in the specifications, drawings, other design data and requirements described in subcondition (1) hereof to be made without the prior approval of the Board.
 - (3) TransCanada shall file with the Board, prior to the commencement of construction, the construction specifications which are to be complied with by TransCanada's contractors. These specifications shall include the nature and extent of the supervision of the work by TransCanada's inspectors.
4. TransCanada, prior to construction, shall file for Board approval, a Construction Schedule which will specify the time and duration of:
 - (i) clearing and right-of-way preparation;
 - (ii) construction;
 - (iii) clean-up operations; and
 - (iv) construction of major stream crossings.

5. TransCanada shall, unless otherwise authorized or ordered by the Board, implement or cause to be implemented, all policies, practices and procedures for the protection of farmlands and the environment which are included in the reports and recommendations of TransCanada's environmental consultant, as adduced in evidence before the Board, and shall cause no changes to be made to the said policies, practices and procedures without prior approval of the Board.
6. TransCanada shall, within six months of leave to open being granted, submit a report to the Board describing the results of the implementation of the policies, practices and procedures referred to in Condition 5 herein. The report shall include the nature and extent of any deviations therefrom, and an assessment of the effectiveness of the said policies, practices and procedures.
7. TransCanada shall, both during and after the construction period, monitor the effects of the construction of the additional pipeline upon farmlands and the environment and shall submit reports to the Board describing such effects, which reports shall be filed:
 - i) within one year of the date of granting leave to open, and
 - ii) on 1 November following the second complete agricultural growing season after the granting of leave to open.

These reports shall include the results of the monitoring programs and the actions taken or which will be taken to prevent or mitigate any long-term effects of construction.

8. TransCanada shall cause the testing of the additional pipeline to be carried out in conformity with the Board's requirements.
9. TransCanada shall cause the construction and installation of the additional pipeline to be completed on or before the 1st day of November, 1980, unless upon application by TransCanada a later date is fixed by the Board.

